

FACT SHEET FOR NPDES PERMIT ST-7436

Facility Name: SYNRAD, INC.

This fact sheet is a companion document to the State Waste Discharge Permit No. ST-7436. The Department of Ecology (the Department) proposes to issue this permit, which will allow discharge of process wastewater to the Alderwood Water and Wastewater District treatment plant, and noncontact cooling water to waters of the state of Washington.

This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. Public involvement information is contained in Appendix A. Definitions are included in Appendix B.

GENERAL INFORMATION	
Applicant	Synrad, Inc.
Facility Location:	6500 Harbour Heights Parkway Mukilteo, WA 98275
Type of Facility:	Manufacturer of Laser Cutting Equipment
Discharge Location:	Alderwood Water and Wastewater District – Discharge to Puget Sound Latitude: 47° 53' 26" N Longitude: 122° 17' 32" W
Water Body ID Number:	WA-PS-0230
SIC Code:	3698

TABLE OF CONTENTS

INTRODUCTION	3
BACKGROUND INFORMATION	3
DESCRIPTION OF THE FACILITY	3
Facility	3
Industrial Process	4
Process Wastewater Discharge	4
Discharge to POTW	4
PERMIT STATUS	4
WASTEWATER CHARACTERIZATION	5
SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT	5
PROPOSED PERMIT LIMITATIONS	6
PROCESS WASTEWATER	6
TECHNOLOGY-BASED EFFLUENT LIMITATIONS	6
EFFLUENT LIMITATIONS BASED ON LOCAL LIMITS	6
MONITORING REQUIREMENTS	7
OTHER PERMIT CONDITIONS	7
REPORTING AND RECORDKEEPING	7
OPERATIONS AND MAINTENANCE	7
PROHIBITED DISCHARGES	7
DILUTION PROHIBITED	7
SOLID WASTE PLAN	7
GENERAL CONDITIONS	8
PUBLIC NOTIFICATION OF NONCOMPLIANCE	8
RECOMMENDATION FOR PERMIT ISSUANCE	8
REFERENCES FOR TEXT AND APPENDICES	8
APPENDIX A--PUBLIC INVOLVEMENT INFORMATION	9
APPENDIX B--GLOSSARY	10
APPENDIX C--SITE MAPS	12
APPENDIX D--RESPONSE TO COMMENTS	15

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments (Appendix D) will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. Changes to the permit and fact sheet will be addressed in Appendix D--Response to Comments.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

FACILITY

Synrad, Inc., has been engaged in the design and manufacture of sealed CO₂ lasers and beam delivery systems in Mukilteo, Washington, since May 1999. The company specializes in design and production of industrial marking and cutting lasers, beam delivery systems, and other laser products (optics, beam expanders, power meters, and power supplies). Research, development, and design are a major portion of the activity of this site.

FACILITY NAME: SYNRAD INC ~ AN EXCEL COMPANY

INDUSTRIAL PROCESS

Production involves machining, welding, etching, and cleaning aluminum alloy stock and other minor components, soldering of circuit boards, and associated electronics processes, as well as assembly and ‘burn-in’ of lasers. Most of the aluminum is received as pre-formed stock.

Synrad manufactures several basic lasers with output power ranging from 10 to 600 watts. Synrad also manufactures a beam delivery system called the Marking Head Line, and other laser products such as focusing optics, beam expanders, power meters, and power supplies.

PROCESS WASTEWATER DISCHARGE

All processes that generate wastewater are located in a single “wet process room.” The majority of the wastewater is generated by two processes: etching and cleaning machined aluminum stock. The etching solution is acidic, and the cleaning solution is basic. Used solutions and rinses are neutralized prior to discharge into the mixing tank as depicted in Figure 1. The effluent pH is monitored continuously. The wastewater is treated until the pH is within the permit limits prior to discharge to the sanitary sewer system. A minor wastewater generating process is ceramic cleaning.

There is no discharge of noncontact cooling water. A closed loop cooling system was installed which uses untreated tap water as the thermal medium with minimum blow down occasionally. There are occasional minor adjustments to the water usage in this system.

DISCHARGE TO POTW

The treated wastewater from the city of Alderwood will be ultimately discharged to Puget Sound after receiving secondary treatment from the treatment plant. The POTW’s effluent is regulated by NPDES Permit No. WA-002082-6.

The plant is a secondary treatment (activated sludge) facility. The design capacity for the plant is 3.0 million gallons per day (MGD). The average flow for the maximum month is 2.122 MGD. Puget Sound in the vicinity of the POTW’s outfall is designated Class “AA” marine water. Characteristic water uses include fish migration; fish and shellfish rearing, spawning, and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

PERMIT STATUS

The previous permit for this facility was issued on May 14, 1999. An application for a permit was submitted to the Department on December 8, 2003, and accepted by the Department on December 10, 2003.

WASTEWATER CHARACTERIZATION

The proposed wastewater discharge is characterized for the following regulated parameters:

Table 1: Process Wastewater Characterization

Parameter	Concentration
pH	Between 5.9 and 8.1 s.u.
Total Oil & Grease	26 mg/L
Copper (total)	30 µg/L
Lead (total)	20 µg/L

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The last inspection was conducted at the facility in May 2000. During the history of the previous permit, the Permittee had the following violations as shown on the submitted discharge monitoring reports:

<u>Outfalls</u>	<u>Parameters</u>	<u>Dates (month/year)</u>
001	Oil & grease	08/99, 04/01, 09/01, 02/02, and 08/02
001	pH	06/99, 07/99, 11/00, 03/01, 04/01, 07 through 11/01, 07/02, 04/03, and 11/03
002	Chlorine (total residual)	06/99 through 07/00, and 07/01.
002	Temperature (°C)	07/99, 08/99, 07/00, 08/00, 09/00, 08/01 05 through 10/01

The Department issued Notice of Violation (NOV) No. DE 00WQNR-1420 for the violations which occurred between June and December 1999 for Outfalls 001 and 002. The facility responded to the NOV on September 28, 2000, with a detailed explanation and proposal of corrective actions to reduce and prevent those violations from occurring again. In addition, the facility proposed to conduct an AKART study for the noncontact cooling water to address the temperature and chlorine violations. The Department found the response to be acceptable and therefore, issued a "No Further Action Order" to close the above NOV. As a result of the AKART study, the facility ceased the discharge of noncontact cooling water to Outfall 002 in December 2003 by 1) installing a closed loop cooling system, and 2) moving the entire plant to a new location thus eliminating Outfall 002.

The Department issued a warning letter in April 2003 for the violations which occurred between December 2001 and August 2002, for Outfall 001. The facility responded to that letter on May 12, 2003, stating that the plant was in the stage of moving from the old location to a new location during the month of December 2001, and that there was no discharge during that month. Through investigation, the facility came to believe that the oil & grease violations for February and August 2002 were due to laboratory analytical errors, and has since changed to a different

FACILITY NAME: SYNRAD INC ~ AN EXCEL COMPANY

laboratory for analysis. No further oil & grease violations have been reported as of today. The pH violation was due to a computer program that they use to generate the discharge monitoring reports which was rounding a decimal number to a whole number.

The Department issued a warning letter in March 2004 for a pH violation which occurred on November 2003. The facility responded to this violation on April 20, 2004.

PROPOSED PERMIT LIMITATIONS

PROCESS WASTEWATER

For industrial discharge to a POTW, state regulations require that limitations set forth in a waste discharge permit must be based on the technology available to treat the pollutants (technology-based) or be based on the effects of the pollutants to the POTW (local limits). Wastewater must be treated using all known, available, and reasonable methods of prevention, control and treatment (AKART) and not interfere with the operation of the POTW.

The more stringent of the local limits-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). Laser manufacture is not a categorical industry. Based on the information presented by the applicant, the proposed discharge is not expected to have environmentally significant impacts if adequate best management practices are utilized to trap the soldering particles and the water is properly neutralized prior to discharge to the sanitary sewer. The effluent limits imposed in the permit for this waste stream are based on local limitations, which are consistent with AKART requirements.

EFFLUENT LIMITATIONS BASED ON LOCAL LIMITS

In order to protect Alderwood Water and Wastewater District POTW from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, limitations for certain parameters are necessary. The following applicable limits are local limits established by Alderwood Water and Wastewater District:

Parameter	Maximum Daily
Flow	1000 gpd
Lead (total)	1.89 mg/L
Copper (total)	3 mg/L
Oil & Grease	100 mg/L
pH	Between 5.5 and 8.5 s.u.

The flow limit proposed in this permit is based on the information provided in the submitted application.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, and that effluent limitations are being achieved (WAC 173-216-110).

The monitoring schedule is detailed in the proposed permit under Conditions S1 and S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges [WAC 273-216-110 and 40 CFR 403.12 (e), (g), and (h)].

OPERATIONS AND MAINTENANCE

The proposed permit contains Conditions S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

PROHIBITED DISCHARGES

Certain pollutants are prohibited from being discharged to the POTW. These include substances which cause pass-through or interference, pollutants which may cause damage to the POTW or harm to the POTW workers (Chapter 173-216 WAC) and the discharge of designated dangerous wastes not authorized by this permit (Chapter 173-303 WAC).

DILUTION PROHIBITED

The Permittee is prohibited from diluting its effluent as a partial or complete substitute for adequate treatment to achieve compliance with permit limitations.

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste.

This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update, as necessary, its solid waste plan. The permit requires the applicant to abide by the provisions of its plan and to submit any changes in the plan to the Department. The requirement for this plan is intended to prevent solid waste from causing pollution of the waters of the state.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to POTW permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending, or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes, or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the Permittee to control production or wastewater discharge in order to maintain compliance with the permit. Condition G10 prohibits the reintroduction of removed pollutants into the effluent stream for discharge. Condition G12 describes the penalties for violating permit conditions.

PUBLIC NOTIFICATION OF NONCOMPLIANCE

A list of all industrial users which were in significant noncompliance with pretreatment standards or requirements during any of the previous four quarters may be annually published by the Department in a local newspaper. Accordingly, the Permittee is apprised that noncompliance with this permit may result in publication of the noncompliance.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics. To be consistent with statewide planning efforts, the Department proposes that the permit be issued for a period of five (5) years. Therefore, this permit will be issued with an expiration date of June 30, 2009.

REFERENCES FOR TEXT AND APPENDICES

Synrad Inc's permit application submitted on December 8, 2003.

Washington State Department of Ecology.

2001. Permit Writer's Manual, Publication Number 92-109

Standards Methods for Examination of Water and Wastewater, 18th Edition.

1998. State Waste Discharge Permit and NPDES Permit Applications submitted by the Permittee.

State Waste Discharge Permit Program, Chapter 173-216 WAC, May 1988.

APPENDIX A—PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department published a Public Notice of Draft (PNOD) on May 13, 2004, in *The Everett Herald* to inform the public that a draft permit and fact sheet were available for review.

Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below.

Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008-5452

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30)-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (425) 649-7201, or by writing to the address listed above.

This permit and fact sheet were written by Jeanne Tran, P. E.

APPENDIX B—GLOSSARY

AKART—An acronym for “all known, available, and reasonable methods of treatment.”

Ambient Water Quality—The existing environmental condition of the water in a receiving water body.

Ammonia—Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Best Management Practices (BMPs)—Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass—The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine—Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity—The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling—A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Engineering Report—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Grab Sample—A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial Wastewater—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Mixing Zone—An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/state permits issued under both state and federal laws.

pH—The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)—A calculated value five times the MDL (method detection level).

Technology-based Effluent Limit—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)—Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit—A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C—SITE MAPS

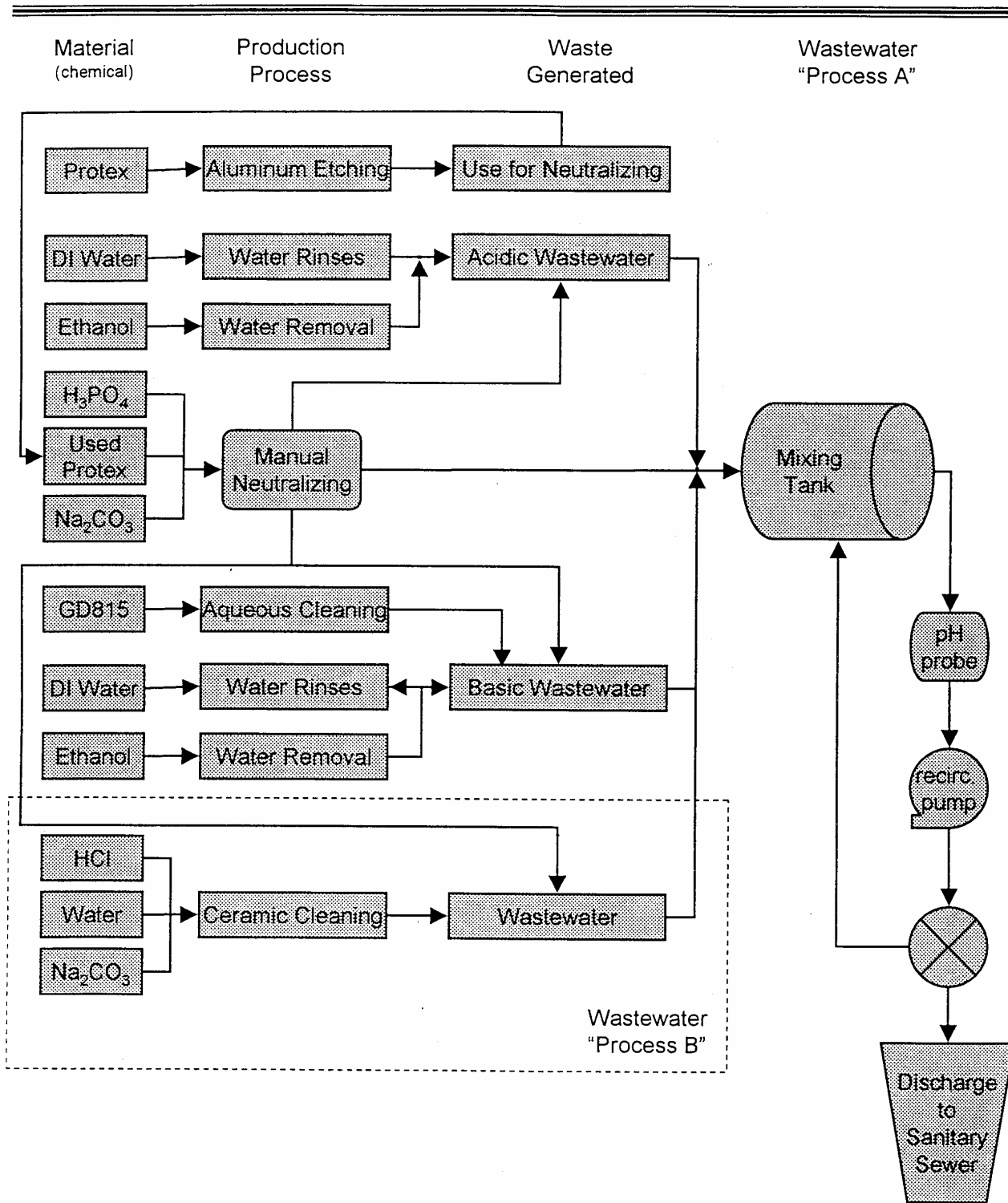
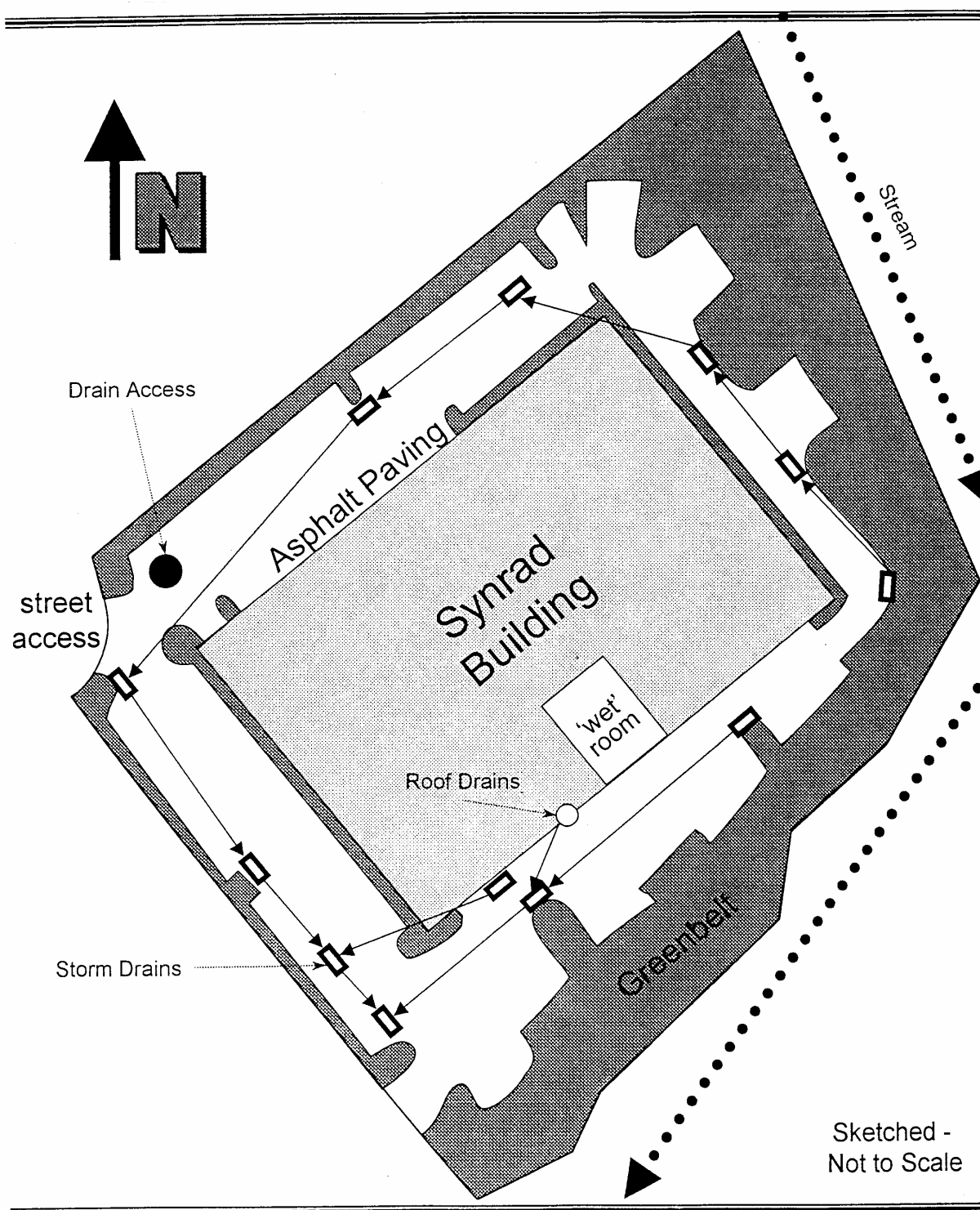


Figure 1. Synrad Wastewater Flow Diagram



revision: 17-Oct-2003

Synrad Wastewater Renewal Application Autumn 2003

Figure 2. Synrad Property/Facility Layout

APPENDIX D—RESPONSE TO COMMENTS